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July 10, 1995

William F. Caton, Acting Secretary
Federal Communications Commission
1919 M Street, N. W.
Washington, D. C. 20554

Dear Mr. Caton:

Transmitted herewith, on behalf of Interactive Systems, Inc., are its Reply Comments in RM-7567.

In the event there are any questions concerning this matter, please communicate with this office.

Very truly yours,

Herbert D. Miller, Jr.

Enc.

ORIGINAL

BEFORE THE

FEDERAL COMMUNICATIONS COMMISSION

Washington, D. C. 20554

In the Matter of DIGITAL DATA TRANSMISSION WITHIN THE VIDEO PORTION OF TELEVISION BROADCAST STATION TRANSMISSIONS

RM-7567

REPLY COMMENTS

Interactive Systems, Inc. (ISI) files herewith, by its attorneys, its Reply to the Comments of WavePhore, Inc., A.C. Nielsen Company, Maximum Service Television, Inc., Chris-Craft Industries, Inc., United Television, Inc., the National Association of Broadcasters, Inc, Comcast Corporation, and Digideck, Incorporated in the above captioned proceeding.

ISI is the proponent of the Veil™ technology, which is currently utilized with NTSC technology and has been successfully operational with broadcast television programming since 1988. The Veil™ technology is a method for transmiting digital data within the visible portion of the television signal. It has been utilized in television programming and in conjunction with interactive toys, games, video verification systems and a variety of other interactive devices. Over 800,000 products have been sold that utilize the Veil™ technology. During ISI's seven years of actual data broadcasting experience and many thousands of hours of data broadcasts, ISI is unaware of a single viewer complaint.

ISI is in general agreement with the position taken by WavePhore, Inc. that the premature adoption of standards by the Commission could retard, rather than advance, technological development. Many different and innovative ways to transmit data through the use of television are currently being explored, and it seems likely that in the absence of restrictive standards, progress will be both revolutionary and evolutionary. In ISI's view, it would be unwise to place hurdles in the way of further technological development by requiring compliance with standards based on one, or even several, of the existing technologies.

ISI also agrees with the position of A.C. Nielsen Company that no existing single technology, and in all probability no future single technology, is a panacea. As Nielsen puts it,

> "[E]ach of the transmission technologies noted by the Commission in the NPRM was created to address and satisfy the unique needs of specific users. For example, the subvideo technology developed by 'WavePhore' might well serve the needs of those attempting to transmit large amounts of computer data from a broadcast station to local users. This need is distinct from, and thus a WavePhore-type technology would fail to serve, Nielsen's need to transmit lesser amounts of data long distances through compressed satellite transmissions. . . . But just as WavePhore's approach might be of no use to Nielsen, Nielsen's alternative methodology, which has been customized for its needs and demands, similarly might not satisfy the needs of WavePhore's proposed customers because its capacity may be far more limited than WavePhore's is claimed to be. The ultimate point is that neither WavePhore's nor Nielsen's 'subvideo' technologies, nor anyone else's, should serve as a 'model' to which transmission system designers must adhere because each will be designed to serve *differing* needs and will be subject to *differing* limitations, market demands and requirements. Such a model or the adoption of such a 'standard' *per se* will inhibit the development of alternatives that might more efficiently, more effectively or otherwise, better serve the public's need." (A.C. Nielsen Comments, p. 19)

ISI understands, but disagrees with, the pro-standard arguments asserted by The Association for Maximum Service Television, Inc., Chris-Craft Industries, Inc., United Television, Inc., the National Association of Broadcasters, Inc., and others. While they doubtless have an interest in fostering new technologies, their primary interest appears to lie in having the regulatory process shield them from any pressing competitive need to get involved with new technology until there is an industry consensus as to how to proceed. Their position would make more sense if technology had peaked, and if it were now feasible to select the one system "best" for all possible uses. That is not the case, however.[1] Were the Commission to adopt a standard now, while the industry is new and innovation is rampant, it would face numerous waiver requests and find itself micromanaging technological development to a much greater extent than is necessary or economically sound.

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[1] Digideck, Incorporated asserts that there is, in fact, one best system, that it is Digideck's, and that the use of any "inferior" system could give the industry "a bad reputation from which it never recovered." (Digideck, Incorporated Comments, p. 5). The telegraphic transmission of Morse Code was, at one time, the best system available for data transmission. It would be a shame if regulatory standards had fixed that as the standard for all time.

Nor, in ISI's view, is there any merit to the view that the Commission must protect broadcasters from themselves by adopting standards to prevent data delivery technologies from perceptibly degrading broadcasters' video signals. As Chris-Craft and United put it in their Joint Comments,

> "[I]t is important to television viewers -- as well as for the market acceptability and success of such systems -- that these technologies not perceptibly degrade the broadcaster's video signal. Chris-Craft / United believes that the appropriate balance . . . is to . . . adopt an industry transmission standard for them.
>
> ***
>
> Broadcasters would be seriously handicapped in competing in this important new market if the broadcast delivery system cannot be assured of regulatory acceptability. . . . [T]he Commission would best serve the public interest in maximizing access to new technologies and fostering competition in the emerging data transmission markets by adopting an industry standard for broadcast data transmission." (Joint Comments of Chris-Craft Industries, Inc. And United Television, Inc., p. 3).

But television broadcasters have a lively interest in the quality of their signals, and spend many millions of dollars to make them as good as they can be. They are entirely capable, ISI submits, of looking at the pictures they transmit and determining whether some ancillary service is hurting them. If it is, they are equally capable of keeping that from happening. They do not need regulatory intervention to "make" them transmit good signals. No broadcaster in his right mind would use, or permit the use of, a technology which he believed had any negative impact on signal quality.

The NAB, while effusive in praise for the Commission's encouragement of digital data transmission technology and agreeing that its "time has come," also urges the Commission to delay the technology until it can adopt technical standards based on the forthcoming report of the National Data Broadcasting Committee. It cites as an example the successful adoption of standards for Multichannel Television Sound (NAB Comments, pp. 4 - 5), and argues that the marketplace success of Multichannel Television Sound could not have been achieved without an established standard. But this argument misses the point: Multichannel Television Sound serves basically one purpose; digital data transmission serves many, as pointed out in the Nielsen comments. Indeed, the surface has merely been scratched in devising uses for digital data transmission. It would be

premature to adopt standards while the technology -- and the uses of that technology -- are experiencing rapid and profound change.

The position of the NAB and others that the process of natural selection can not successfully occur in the market place is belied by the history of the personal computer industry. In the early years, there were many competing disk operating systems. They were mutually inconsistent, and software designed to run on a computer using the MS DOS system could not run on one using the Apple DOS system or the Commodore DOS system or the TRS DOS system or any of the other mutually exclusive disk operating systems in use. With time, the field narrowed and now there are basically two mutually exclusive disk operating systems, MS DOS and Apple DOS. Both are dramatic improvements over their earlier iterations, and software and hardware have been developed which render them compatible, or nearly so. A Federal Computer Commission could, perhaps, have decided, in the late 1970's or early 1980's, to make "the best" of the existing disk operating systems the standard, to prohibit the use of all other disk operating systems, and to require approval before any significant changes to the standard could be made. Had that been done, it seems very likely that, with the competitive incentives which stimulated experimentation and refinement supplanted by notice and comment rule making proceedings and waiver requests, personal computer technology in that area would be far inferior to what is currently available. It also seems likely that if the development of disk operating systems had been retarded in this fashion, the impact would have been felt throughout the entire personal computer industry. The Commission should consider this analogy which, it is submitted, is far more apposite than the Multichannel Television Sound standard analogy suggested by the NAB.

Somewhat inconsistently, the NAB takes the position that

> "NAB has no objection to the Commission allowing those systems that are closed (i.e. where the transmissions are for a proprietary business purpose or are intended only for specific subscribers) to begin operation immediately. In this case, we believe that a Commission adopted standard is less necessary assuming that interference and signal degradation issues have been addressed " (NAB Comments, p.4, n.6).

But there is no reason to believe -- and the NAB suggests none - that interference and signal degradation will be greater in the case of "open" systems than in the case of "closed" systems. The various technologies under discussion have potential uses of both an "open" and a "closed" nature, and the ISI Veil™ technology has been used in both contexts, quite successfully, with neither interference nor signal degradation. The NAB position on this point suggests that the NAB realizes that broadcasters are entirely capable of monitoring their own transmissions and ensuring that they are as good as the equipment they buy can produce. They will do so regardless of whether an "open" or "closed" system is in use.[2]

Comcast Corporation asserts that the use of "sub-video methods may cause picture quality degradation when the TV signal with sub-video insertion is processed by a digital compression methodology, including the MPEG-2 standard." (Comcast Corporation Comments, p. 2). However, there is no apparent reason why the use of a technology such as Veil™ should have any such effect because of the slow data rate. Even if the interaction of other, much higher speed, sub-video technologies with digital compression technologies were to result in the equivalent of more "movement" when sequential picture frames are compared, as Comcast appears to suggest, this should merely result in less compression. By analogy, the transmission of "a still scene captured by a camera undergoing a pan motion" can be very substantially compressed; the transmission of news coverage of a street riot can be less substantially compressed. This does not reasonably suggest, however, that news coverage should be suppressed in the interest of economy of compression. It does suggest that those using compression technologies should be responsible for ensuring that what they get, and what they deliver, are substantially identical and that their compression methods do not cause degradation.

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[2] ISI agrees with the NAB and the other commentors who acknowledge that "closed" data transmission systems should be allowed to operate without further regulatory approval.

CONCLUSION

ISI submits that the Commission should adopt no standard now, and that it should immediately declare that broadcasters are free to use any technology which does not noticeably degrade their signals or cause interference. If, when the NDBC furnishes its final report, it recommends the adoption of a standard which favors one technology, the Commission should reject that recommendation. The Commission certainly should not adopt any such recommendation without receiving, and carefully considering, comments from those potentially affected by it.

Respectfully submitted,
Interactive Systems, Inc.

By /s/ Herbert D. Miller, Jr.
Herbert D. Miller, Jr.

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July 10, 1995

Certificate of Service

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July 10, 1995